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Child Maltreatment and Emergent Personality Organization: Perspectives From the Five-Factor Model

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The Five-Factor Model was used to examine personality organization in 211 six-year-old children (135 maltreated and 76 nonmaltreated). Longitudinal assessments were conducted at ages 7, 8, and 9. Six-year-old maltreated children exhibited lower agreeableness, conscientiousness, and openness to experience and higher neuroticism than did nonmaltreated children. Maltreated children also were more frequently represented in less adaptive personality clusters than were their nonmaltreated counterparts. A particularly vulnerable profile occurred predominantly among maltreated children and was related to experiencing both abuse and neglect. Child maltreatment and personality clusters were related to individual differences perceived by peers. Longitudinal stability of the personality dimensions also was assessed. At age nine, evidence was found for maintenance of the organization of the personality clusters obtained at age six and for continuity of maltreated children's personality liabilities.

KEY WORDS: maltreatment; personality development; peer relations; Five-Factor model.

Maltreated children are at high risk for the development of many forms of psychopathology across the life course (Cicchetti & Lynch, 1995; Cicchetti & Toth, 1995). However, despite the high probability of disordered outcomes at the group level, not all maltreated children develop maladaptively, and resilient or successful outcomes in the presence of adversity do occur (Cicchetti & Rogosch, 1997; Cicchetti, Rogosch, Lynch, & Holt, 1993; Moran & Eckenrode, 1992). Given this substantial diversity in functioning observed among maltreated children, consideration of the extent of variation in personality characteristics and personality organization among maltreated children is likely to provide important direction for understanding differential vulnerability among these youth.

Early in development, temperament models have been prominent in characterizing individual differences among infants and young children (Rothbart, Posner, & Hershey, 1995). Temperament models emphasize variation in behavioral characteristics that are presumed to be biologically based (Rothbart & Bates, 1998). Component temperament systems (e.g., surgency, negative affectivity, effortful control) are conceptually linked to variation in different physiological and neurological processes. As children develop, the features of these temperament systems are elaborated and modified by environmental experience as an individual's personality is constructed and elaborated (Kagan, 1994).

The study of maltreated children affords an opportunity to examine environmental experience that is far beyond the range of what is normatively encountered and to determine the extent of associated variation in personality organization that occurs among maltreated children, relative to nonmaltreated peers. Child maltreatment exemplifies a pathogenic relational environment that poses substantial risk for maladaptation across diverse developmental domains. Defining features of child maltreatment include neglect, emotional maltreatment, physical abuse, and sexual abuse (Cicchetti & Barnett, 1991) These forms of child maltreatment represent two broad classes of parenting failure and violations of what is characterized as "good enough parenting" (Winnicott, 1958). Neglect involves *parental acts of omission*, in which there is serious failure to attend to the basic needs of children.

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In contrast, the different forms of abuse (i.e., emotional, physical, sexual) involve *parental acts of commission*, in which inappropriate and harmful behaviors are enacted upon children. Rather than occurring in isolation, maltreated children typically are subjected to multiple occurrences of abuse and/or neglect, and children frequently experience both forms of maltreatment. Through lack of attention to physical and emotional needs, deficits in the provision of protection and safety, excessive generation of fear, violations of trust, and betrayal of affectional ties, child maltreatment may be expected to compromise children's capacities in striving for competent adaptation.

Substantial evidence exists documenting the developmental consequences of child maltreatment. Maltreated children have been shown to be in jeopardy of resolving a series of stage-salient tasks of development in a compromised fashion as they attempt to adapt to their maltreatment experiences. From infancy onwards, aberrations in homeostatic regulation, affect differentiation, attachment organization, self development, representational capacities, peer relationships, and adaptation to school comprise successive developmental attainments that are impaired in maltreated children (see Cicchetti & Lynch, 1995, for a review). Peer relations during the school-age years are particularly crucial for social development, and affect dysregulation, insecure attachments, and negative self organizations developing during infancy and toddlerhood contribute to difficulties for maltreated children in relating adaptively with agemates. Maltreated children have been found to exhibit incompetence and maladjustment in peer relations (Bolger, Patterson, & Kupersmidt, 1998; Kaufman & Cicchetti, 1989; Okun, Parker, & Levendosky, 1994; Rogosch & Cicchetti, 1994); they display fewer prosocial behaviors (Haskett & Kistner, 1991; Kaufman & Cicchetti, 1989) and heightened physical and verbal aggression and negativity (Dodge, Pettit, & Bates, 1994; Salzinger, Feldman, Hammer, & Rosario, 1993; Shields & Cicchetti, 1998). Excessive aggression and withdrawal have been two overarching themes characterizing the peer relations of maltreated children (Cicchetti, Lynch, Shonk, & Manly, 1992; Mueller & Silverman, 1989). Thus, these detrimental effects of child maltreatment on the attainment of stage-salient developmental competencies are likely to be reflected in the personality features and organization that maltreated children exhibit.

In addition to temperament models to characterize individual differences among infants and young children (Rothbart & Bates, 1998), recent interest in the study of personality structure in children has drawn on models of adult personality as a foundation for articulating the major components of the developing personality (Shiner & Caspi, 2003). The Five-Factor Model (FFM) or Big Five approach (Digman, 1990; Goldberg, 1993; McCrae & Costa, 1990, 1999; Wiggins, 1996) has become well established as a synthesizing descriptive system of adult personality. The primary personality dimensions of the Five-Factor Model (Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience) have been factor analytically derived from trait-descriptive adjectives used to characterize human functioning in natural language and from analyses of comprehensive personality questionnaires. The FFM comprises a hierarchically organized personality taxonomy. The five dimensions of the FFM represent higher order traits or broad general dimensions of individual differences in personality. More specific, circumscribed, lower order traits are hierarchically organized through their association with the higher order traits (McCrae & John, 1992).

The FFM has similarity to several other personality models, including Eysenck's three-factor model (Eysenck, 1991), Tellegen's system of personality structure (Tellegen, 1985), and Cloninger's temperament model (Cloninger, Svrakic, & Przybeck, 1993). Common to these models are three higher-order domains that are believed to correspond to differential reactivity or responsivity of specific neural systems (Derryberry, Reed, & Pilkenton-Taylor, 2003). These domains include an approach or appetitive domain, an avoidance or defensive domain, and a constraint or attentional domain. In the FFM, extraversion corresponds to the approach system. Extraversion involves positive emotionality and active engagement in the world through high approach and reward sensitivity. Individuals with high extraversion are outgoing, dominant, expressive, and energetic. In contrast, low extraversion, that is, introversion, implies tendencies to avoid social experiences and to restrict expression of intense positive affect. Such individuals are more inhibited, quiet, restrained, and passive. In contrast to extraversion, neuroticism in the FFM corresponds to the avoidance/defensive domain. Tendencies to experience high negative emotionality are prominent. The world is experienced as threatening and distressing, and inhibition, avoidance, and punishment sensitivity are heightened. The FFM trait of conscientiousness corresponds to the constraint/attentional domain. Conscientiousness involves the extent of control over impulses and emotion, as well as the ability to direct attention and delay gratification in the service of more distal goals. Individuals high on this dimension are diligent, planful, persistent, reliable, and responsible. The two remaining FFM traits, agreeableness and openness to experience, appear to be less clearly linked to specific temperamental systems (Shiner & Caspi, 2003). Agreeableness characterizes individuals on the extent to which they display warmth, compassion, and kindness versus interpersonal antagonism. Opennes

to experience involves the extent of one's intellectual curiosity, creativity, and insightfulness.

Investigations of the FFM in children have consistently found support for the dimensions of extraversion, agreeableness, conscientiousness, and neuroticism. As in studies of adults, the openness to experience trait tends to show weaker coherence and robustness, although support for this trait has been found in investigations with children and adolescents (Mervielde, DeFruyt, & Jarmuz, 1998). John and his colleagues (John, Caspi, Robins, Moffitt, & Stouthamer-Loeber, 1994) utilized a common language version of the California Child Q-Set (CCQ; Block & Block, 1969/1980; Caspi et al., 1992) to develop scales consistent with the FFM personality dimensions. The personality dimensions were found to distinguish different aspects of children's functioning. Boys with externalizing problems obtained high extraversion scores, and low agreeableness and conscientiousness scores; boys with internalizing problems were found to have low conscientiousness and high neuroticism. Higher conscientiousness and openness to experience were associated with more successful school performance and higher intelligence. Thus, variation in behavioral and cognitive functioning was related in conceptually consistent ways to individual differences in the FFM personality characteristics.

In studying any population of children, and maltreated children in particular, it is important to appreciate that there is likely to be considerable diversity within the group under investigation. When maltreated children are contrasted with nonmaltreated children, analyses comparing individual personality dimensions between groups reveal how personality dimensions differ for the average maltreated child versus the average nonmaltreated child. This unit of analysis is "variable-centered," and is informative in terms of how variables differ on average between groups. Shiner (1998) has noted that research on personality development has predominantly taken this variable-centered strategy to examine group differences on individual variables. In contrast to variable-centered strategies, "person-centered" approaches involve the examination of configurations of personality dimensions within individuals to discern personality types (Bergman & Magnusson, 1997; Cairns, Bergman, & Kagan, 1998; Cicchetti & Rogosch, 1996; Magnusson, 1998; Robins, John, & Caspi, 1998). Different subgroups of individuals who share common profiles across multiple personality variables are identified and contrasted, and the prevalence of different profiles for various groups (i.e., maltreated and nonmaltreated children) can be compared. As such, person-centered strategies move closer to delineating dynamics among personality constructs within the person, as compared to relations among personality constructs averaged across individuals. Both person-centered and variable-oriented approaches offer valuable perspectives that complement each other. Variable-centered approaches are useful for highlighting the average differences between groups on personality dimensions, whereas person-centered approaches may reveal important variations in patterns of personality organization within a group, which may be particularly informative for discerning different developmental pathways that children follow.

From a developmental psychopathology perspective (Cicchetti & Rogosch, 1996), the developmental pathways arising from common initial conditions or experiences (i.e., child maltreatment) may result in a range of subsequent outcomes (i.e., multifinality). Moreover, a specified developmental outcome is likely to be achieved from divergent initial conditions (i.e., equifinality). As such, child maltreatment is not expected to lead to the same outcome or personality organization in all maltreated children; rather, different patterns of personality organization are probable. Furthermore, as in the case of resilience, there is the potential for adaptive versus maladaptive outcomes to occur in maltreated, as well as in nonmaltreated children. From this perspective, utilization of person-centered strategies has promise for articulating multiple patterns of personality organization that may exist among maltreated and nonmaltreated children, consistent with the expectations of multifinality and equifinality in personality development.

Research on personality in children has taken a person-centered approach to identify individuals exhibiting common patterns of organization among the FFM personality dimensions. Robins, John, Caspi, Moffitt, and Stouthamer-Loeber (1996) used inverse factor analysis to group together boys based on similarity of their individual distributions of CCQ items. Three personality configurations emerged from this analysis and were named as follows: "Resilients" (66%), "Overcontrollers" (14%), and "Undercontrollers" (20%). Resilients[3] exhibited relatively high levels across the dimensions except for neuroticism, which was low. In contrast, Overcontrollers had low scores on extraversion (thus, more introverted) and high scores on neuroticism, yet they were comparable to Resilients in agreeableness. Finally, Undercontrollers, although mid-range on extraversion, were markedly low on agreeableness and conscientiousness, with high scores on neuroticism. Undercontrollers and Overcontrollers were

[3]The personality profile labeled "Resilients" (Hart et al., 1997; Robins et al., 1996) and the personality construct of ego-resiliency (Block & Block, 1980) are not synonymous with the concept of "resilience." Resilience in functioning involves children who adapt competently despite significant adversity in their lives. See Cicchetti and Rogosch (1997) and Luthar, Cicchetti, and Becker (2000) for discussions of this distinction.

similar and lower than the Resilient group in terms of their scores on openness to experience. Thus, subgroups of children were distinguished based on differential configurations of organization among the Big Five personality characteristics.

The three personality profile groups differed on various indicators of adaptive functioning. Undercontrollers demonstrated considerable difficulties in school performance and conduct, compared with the Resilients and Overcontrollers. Whereas Resilients exhibited minimal psychopathology, Overcontrollers had a higher prevalence of internalizing syndromes, and Undercontrollers had diverse forms of disturbance, including externalizing syndromes and internalizing syndromes, as well as comorbid syndromes. Thus, the person-centered strategy of segregating children into subgroups based on similarities in personality organization demonstrated utility in terms of delineating subgroups of children who demonstrated different levels of adaptive functioning and psychopathology.

The Resilient, Overcontrolled, and Undercontrolled personality patterns have been identified in other longitudinal, cross-cultural investigations (Asendorpf & van Aken, 1999; Caspi & Silva, 1995; Hart, Hofman, Edelstein, & Keller, 1997), and subsequent differences in functioning among the personality groups have been found. In a sample of Icelandic 7-year-old children followed longitudinally to age 15, Hart et al. (1997) found that the Resilient cluster of children demonstrated higher academic achievement and lower concentration problems in adolescence. In contrast, children in the Overcontrolled cluster evinced low self esteem and social withdrawal, and Undercontrollers were distinguished by aggressiveness. Asendorpf and van Aken (1999), in a longitudinal study of German children from preschool to age 12, found decreasing cognitive competence in the Overcontrolled cluster, contrasting with greater stability of high cognitive competence in the Resilient group and low cognitive competence in the Undercontrolled group. Stable differences also were noted for aggressiveness, with the Undercontrolled children showing high levels, relative to children in the Resilient and the Overcontrolled clusters. Caspi and Silva (1995) identified five behavioral style clusters (Undercontrolled, Inhibited, Confident, Reserved, and Well-adjusted) in a birth cohort of 3-year-old New Zealand children. Three of the clusters were conceptually similar to the clusters ascertained by Robins et al. (1996), Hart et al. (1997), and Asendorpf and van Aken (1999). The age three clusters were found to have expectable relations with self-reported personality at age 19. Thus, these investigations have demonstrated consistency in the organization of personality characteristics comprising distinct subgroups of children, continuity of individual differences among children based on configurations of early personality organization, and power of early personality patterns to predict differences in later functioning.

Less attention has been directed toward the examination of factors that contribute to the emergence of individual differences in the personality traits and types identified. Children's rearing experiences are likely to be fundamentally important to personality development and may interact with biological and genetic foundations of individual differences. The study of the extreme family relational disturbances and deficits in basic need fulfillment inherent in maltreating families constitutes a method to expand the variation in family experience beyond that which is typically observed. When child maltreatment is considered as an experiment in nature (Cicchetti, 1989), the criticality of normative childrearing experiences for adaptive personality development may be seen in relief by means of contrast with the personality functioning observed in maltreated children. If maltreatment differences are not found, then the influence of familial experiences would be minimized. In contrast, the delineation of maltreatment effects provides important evidence for the influence of experience on personality development, as well as the detrimental consequences of serious dysfunction in childrearing.

In this investigation, early school-age personality organization in low-income maltreated and nonmaltreated children was examined utilizing CCQ evaluations when children were 6 years old. The children were then followed longitudinally through age nine. It was hypothesized that maltreated children as a group would evince substantial differences in the FFM personality dimensions, with maltreated children exhibiting lower extraversion, agreeableness, conscientiousness, and openness to experience and higher neuroticism, as compared to nonmaltreated children. Differences on these dimensions for maltreated children who had been neglected, abused, or both were examined, although no specific hypotheses were made as to the differential effects of these forms of maltreatment.

Clusters of children with similar profiles across the Big Five dimensions also were identified. We hypothesized that maltreated children would be found more often among personality profiles indicative of less adaptive personality functioning. This person-centered strategy also was expected to reveal variations in the types of personality organization that occur among maltreated children. The attention to diversity in the maltreatment group was expected to complement and extend findings revealed through examination of variable-level, group mean differences.

Because peer relations become an increasingly important arena for social development during the early school-age years (Rubin, Bukowski, & Parker, 1998), we

also were interested in evaluating the extent to which peers are able to differentiate among children who exhibit different profiles of personality organization. We expected that peers would perceive maltreated children as less socially competent, and that peers would ascribe different characteristics to children exhibiting varying personality configurations.

Children were followed longitudinally from 6 to 9 to establish the extent of continuity of individual differences in personality functioning over the school-age years. We expected to observe stability of the Big Five personality dimensions over time, continuity in differences among personality profile groups, and the maintenance of differences between maltreated and nonmaltreated children over this age span.

METHOD

Participants

The participants in this investigation initially included 211 6-year-old children ($M = 6.45$, $sd = .27$) who attended a summer camp program designed for school-aged low-income, maltreated and nonmaltreated children. In addition to recreational activities, the annual summer camp program incorporated a research component. For developmental uniformity among the participants, children who were 6 years old and attending the summer camp for the first time were aggregated from across the years 1990–95. Approximately 35 six-year-olds in each year were progressively added to the sample. Children were followed longitudinally at ages 7, 8, and 9 through their participation in the camp in subsequent summers.

The racial/ethnic composition of the sample was diverse: 48.8% were African American, 12.3% were Hispanic American, 9.0% were of other racial/ethnic backgrounds, and 29.9% were European American. In terms of gender composition, 62.1% were boys. Sixty-four percent ($n = 135$) of the children were maltreated; 36.0% ($n = 76$) were not maltreated.

Parents of all maltreated and nonmaltreated children provided informed consent for their child's participation, as well as consent for examination of any Department of Social Services (DSS) records. Children in the maltreated group had been identified by the county DSS as having experienced child abuse and/or neglect, and the sample was representative of the children in families receiving services from the DSS. Comprehensive searches of DSS records were completed, and maltreatment information was coded utilizing operational criteria contained in the Barnett, Manly, and Cicchetti (1993) nosological system for child maltreatment.

Children in the maltreatment group all had documented histories of abuse and/or neglect according to DSS records. However, DSS record information was not complete enough for four maltreated children (3.0%) to code maltreatment subtype information. Among the maltreated children, 80.2% had experienced neglect, 66.4% had experienced emotional maltreatment, 55.7% had experienced physical abuse, and 17.6% had experienced sexual abuse. As is typical in maltreated populations (Bolger et al., 1998; Manly, Cicchetti, & Barnett, 1994; Manly, Kim, Rogosch, & Cicchetti, 2001), the majority of children had experienced multiple subtypes of maltreatment. Specifically, 67.2% of the maltreated children had experienced two or more maltreatment subtypes ($M = 2.19$, $sd = 1.02$), and 13 of the 15 possible combinations of the four maltreatment subtypes were observed in the sample. To consolidate groups for comparison purposes, we sought to differentiate children whose maltreatment experiences had involved neglect (i.e., acts of omission by caregivers in meeting parenting responsibilities to the child) versus abuse (i.e., acts of commission involving enactment of inappropriate behavior in relating to the child in the form of emotional maltreatment, physical abuse, and/or sexual abuse). Accordingly, three maltreatment subtype groups were formed: neglect only (20.6%), abuse only (19.8%), and both neglect and abuse (59.8%). This maltreatment subtype designation was used in subsequent analyses.

Because maltreated children are predominantly from low socioeconomic status families, demographically comparable nonmaltreated children were recruited from families receiving Aid to Families with Dependent Children (AFDC). DSS record searches were completed for these families to verify the absence of any record of child maltreatment. Trained research assistants also interviewed mothers of children recruited for the nonmaltreatment group to confirm a lack of DSS involvement. Subsequently, record searches were conducted in the year following camp attendance to verify that all available information had been accessed. Only children from families without any history of documented abuse and/or neglect were retained in the nonmaltreatment group. In addition, families who had received preventive services through DSS due to concerns over risk for maltreatment also were excluded from the nonmaltreated comparison group to reduce the potential for unidentified maltreatment existing within this group. This screening process resulted in a reduction in the size of the nonmaltreated group relative to the maltreated group used in analyses.

Table I presents demographic characteristics of children in the maltreated and nonmaltreated groups. On the basis of annual DSS census reports, the maltreated families were demographically comparable to the population

Table I. Demographic Characteristics

	Comparison ($n = 76$) % or $M(SD)$	Maltreated[a] ($n = 135$) % or $M(SD)$
Sex (% boys)	59.2%	63.7%
% Minority	75.0%	67.4%
Age	6.46(.27)	6.44(.27)
Adults in home	1.52(.55)	1.68(.77)
Hollingshead SES	21.7(7.14)	20.9(7.64)
Family income (k)[b]	14.7(7.30)	16.6(9.51)
Receiving AFDC	85.5%	86.7%

[a] All group differences were nonsignificant.
[b] Includes welfare benefits.

of maltreating families served by the local DSS. The maltreated and nonmaltreated groups were well-matched and did not differ in terms of sex, minority status, age, number of adults in the home, Hollingshead four-factor social status scores, family income including welfare benefits, or current receipt of AFDC. The demographic characteristics of the sample indicate that children were from impoverished, low socioeconomic status families, suggesting that even the nonmaltreated comparison children faced substantial adversity.

Procedure

Each summer of the annual camp program, parents provided informed consent to have their child attend a week-long day camp program and participate in the program research component. At the camp after providing assent, the children took part in a variety of recreational activities. Children were assigned to groups of eight same-age and same-sex peers; half of the children assigned to each group were maltreated. As a result of actual attendance, groups varied in size from six to eight children. Each group was conducted by three trained camp counselors, who were unaware of the maltreatment status of children and the hypotheses of the study. Each day of camp lasted for seven hr, providing 35 hr of interaction between children and counselors. In addition to the recreational activities, children participated in various research assessments (see Cicchetti & Manly, 1990, for detailed descriptions of camp procedures). Children's sociometric evaluations are presented in the current report. The counselors conducted the peer nomination assessments individually with the children in their respective groups regarding other group members. The counselors, who had been trained extensively for 2 weeks prior to the camp, also completed the California Child Q-set on individual children, on the basis of their observations and interactions with children in their respective groups. In subsequent years, different camp counselors provided assessments of children at later ages.

Longitudinal data, collected for the six-year-olds as they subsequently attended the summer camp program at the ages of 7, 8, and 9, were available for 155 children (57 nonmaltreated, 98 maltreated) at age 7, 131 children (47 nonmaltreated, 84 maltreated) at age 8, and 128 children (47 nonmaltreated, 81 maltreated) at age 9. Given that participant loss was the largest by age nine, the 128 children for whom age nine data were available were compared to the remaining children without age nine data to evaluate the potential of selective attrition. No group differences were found in terms of sex, race, maltreatment status, maltreatment subtype group, year of entry into the study, mean scores on any of the Big Five dimensions, personality cluster membership (as described below), or age six peer nomination variables. Thus, there was no evidence that selection biases contributed to the composition of the subsample retained at age nine.

There was some variation across participants in the pattern of subsequent camp attendance. For example, some children may have missed 1 year of camp (e.g., at age 7), but they were able to participate in the following year(s). Overall, follow-up data were obtained for one or more subsequent years for 84.8% of the sample. However, complete data across all four years of assessment were available for only 42.2% of the participants. Accordingly, the degree of missing data restricted the extent to which repeated measures analyses or growth curve modeling could be conducted across all four of the annual assessments from age six through nine.

Measures

Maltreatment Classification System (MCS)

The MCS (Barnett et al., 1993) was used to delineate diverse features of maltreatment experienced by individual children. The MCS utilizes DSS records detailing investigations and findings involving maltreatment in identified families over time. Rather than relying on official designations and case dispositions, the MCS codes all available information from DSS records, making independent determinations of maltreatment experiences. On the basis of the operational criteria, the MCS designates all of the subtypes of maltreatment children have experienced (i.e., neglect, emotional maltreatment, physical abuse, sexual abuse), the severity of each subtype, frequency of occurrence, developmental periods of occurrence, and the perpetrator(s) of the maltreatment. Coding of the DSS records was conducted by trained research

assistants, doctoral students, and clinical psychologists. Adequate reliability has been obtained (weighted kappas ranging from .86 to .98; Manly et al., 2001). Other investigators have demonstrated that the MCS is reliable and valid in classifying maltreatment (Bolger et al., 1998; Smith & Thornberry, 1995).

In terms of the subtypes of maltreatment, *neglect* involves failure to provide for the child's basic physical needs for adequate food, clothing, shelter, and medical treatment. In addition to inadequate attention to physical needs, forms of this subtype include lack of supervision, moral-legal neglect, and education neglect. *Emotional maltreatment* involves extreme thwarting of children's basic emotional needs for psychological safety and security, acceptance and self-esteem, and age-appropriate autonomy. Examples of emotional maltreatment of increasing severity include belittling and ridiculing the child, extreme negativity and hostility, exposure to severe marital violence, abandoning the child, and suicidal or homicidal threats. *Physical abuse* involves the nonaccidental infliction of physical injury on the child (e.g., bruises, welts, burns, choking, broken bones). Injuries range from minor and temporary to permanently disfiguring. Finally, *sexual abuse* involves attempted or actual sexual contact between the child and caregiver for purposes of the caregiver's sexual satisfaction or financial benefit. Events range from exposure to pornography or adult sexual activity, to sexual touching and fondling, to forced intercourse with the child.

California Child Q-Set (CCQ)

At the end of each week of camp after extensive observation and interaction, two counselors independently completed the CCQ (Block & Block, 1969/1980) on children in their group. The CCQ consists of 100 diverse items about children's personality, and cognitive and social characteristics. Raters sort the individual items printed on cards into a fixed distribution of piles depicting nine categories, ranging from most to least characteristic of the individual child. Thus, individual profiles of the 100 items are generated for each child. Interrater agreement (average intraclass correlations among pairs of raters) across the years of the study ranged from .74 to .83 ($M = .82$).

The Big Five personality dimension scores (extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience), as defined by John et al. (1994) with CCQ data, were generated from each counselor's evaluation of individual children based on the placement of respective items on each scale in the nine characteristic to noncharacteristic piles. Sample items for each of the Big Five scales are as follows: *extraversion* – "Is vital, energetic, lively" and "Is shy and reserved, makes social contacts slowly" (reverse scored); *agreeableness* (versus antagonism) – "Is helpful and cooperative" and "Behaves in a dominating way with others" (reverse scored); *conscientiousness* – "Can be trusted, is dependable" and "Is resourceful in initiating activities;" *neuroticism* (versus emotional stability) – "Tends to brood, ruminate, and worry" and "Can recoup or recover after stressful experience" (reverse scored); and *openness to experience* – "Is curious and exploring, eager for new experiences" and "Is creative in perception, thought, work, or play." The two counselors' scores on each Big Five scale for individual children were averaged to derive scale scores for each child on each dimension.

Internal consistencies of the dimensions were acceptable for four of the five dimensions, and within dimensions, the coefficient alphas showed little variation across the four ages of assessment: extraversion: .90, .88, .85, and .87, for ages six, seven, eight, and nine, respectively; agreeableness: .93, .93, .93, and .93; conscientiousness: .78, .77, .73, and .75; and neuroticism: .78, .81, .75, and .78. Openness to experience demonstrated weaker internal consistency but also little variation across years: .49, .50, .44, and .41.

Peer Nominations

After children had interacted with each other during the week of summer camp, children evaluated the characteristics of their peers in their respective camp groups using a peer nomination method on the last day of camp (Coie & Dodge, 1983). Counselors conducted the peer nomination assessment with individual children. Each participant was asked to select one peer from the group who best fit a description of a child exhibiting particular patterns of social behavior. Five different categories were used including the following: shy, cooperative, leader, disruptive, and fighter. The total number of nominations in each category that each individual child received from peers in his/her group was determined, and these totals were converted to proportions of the possible nominations in each category and standardized within each year of camp.

RESULTS

Plan of Analysis

Variable-centered analyses were conducted to examine maltreatment group differences at age six on each of

the Big Five personality dimensions. The influences of neglect, abuse, and co-occurring abuse and neglect also were investigated. Person-centered analyses were then undertaken. Cluster analysis was utilized to identify clusters of children who shared similar profiles across the personality dimensions. The distribution of maltreated and nonmaltreated children within these empirically derived personality clusters was then determined. Peer evaluations were used to provide external validation of the clusters, as well as to compare how peers perceived children in the different clusters and the maltreated and nonmaltreated groups.

Longitudinal stability of the personality dimensions, personality profile groups, and maltreatment group differences was then investigated. For each of the personality dimensions, stability correlations among scores at age 6, 7, 8, and 9 were evaluated. Subsequently, we focused on age nine results to assess evidence for continuity of personality features and organization at the farthest point in subsequent development available in this study. Whether the level of the personality dimensions changed by age nine was investigated, as well as the extent to which there was continuity in maltreatment group differences. Finally, continuity of the pattern of differences on the personality dimensions among the personality cluster groups at age nine was examined.

Variable-Centered Analyses of the Big Five Personality Dimensions at Age Six

Maltreatment Group Differences

A MANOVA was conducted with maltreatment status as the independent variable; the Big Five scales assessed at age six constituted the dependent variables. The multivariate effect for maltreatment status was significant, Wilks's $F(5,205) = 7.31$, $p < .001$. Follow-up univariate t tests were conducted to compare maltreated and nonmaltreated children on each of the Big Five scales. Significant differences were obtained on four of the five dimensions, and these differences in terms of standardized scores are illustrated in Fig. 1. Although no differences emerged for extraversion, significant differences were found for agreeableness, conscientiousness, neuroticism, and openness to experience. Maltreated children evidenced lower agreeableness, conscientiousness, and openness to experience and higher levels of neuroticism as compared to nonmaltreated children. Thus, six-year-old maltreated children were found to have less adaptive functioning on four of the five personality dimensions, suggesting that maltreated children as a group exhibit extensive personality liabilities.

Variation Associated with Abuse and/or Neglect

In addition to the overall maltreatment differences observed, we sought to examine the extent to which variation in the form of maltreatment experienced, that is, abuse, neglect, or co-occurring abuse and neglect, would be differentially related to the personality dimensions. Accordingly, a MANOVA was conducted with the four group abuse/neglect designation (nonmaltreated, neglect only, abuse only, both abuse and neglect) as the independent variable, and a significant multivariate effect for group was found, Wilks's $F(15,549.75) = 4.64$, $p < .001$. Follow-up univariate tests with post-hoc Tukey HSD comparisons were then examined. As was the case with the more global maltreatment designation, no significant group differences were found for extraversion; however, significant group differences were found for the other four personality dimensions (See Table II). Nonmaltreated children had higher levels of agreeableness than both the abuse and the abuse/neglect group, but did not differ from the neglect only group. Moreover, the neglect only group obtained higher agreeableness scores than the abuse/neglect group. The abuse/neglect group was strongly differentiated in terms of conscientiousness, scoring significantly lower on this scale than all other groups, whereas the other groups were not significantly different from each other. Group differences in neuroticism also were obtained. The abuse/neglect group scored higher on this dimension than nonmaltreated children, as well as children in the abuse only group. Finally, for openness to experience, the abuse/neglect group had lower scores on this dimension than the nonmaltreated group.

The contrasts among the different abuse and neglect groups were noteworthy. Specific effects of abuse were indicated for one of the dimensions, agreeableness. Both the abuse only and the abuse/neglect group had lower agreeableness scores than nonmaltreated children; however, the co-occurring abuse and neglect group also had lower agreeableness than the neglect only group. Thus, abuse appears to be specific to variation on the agreeableness dimension, contributing to lower scores. This pattern of specific abuse effects was not observed for the other dimensions. In fact, the abuse only group was found to differ significantly from the co-occurring abuse/neglect group on both conscientiousness and neuroticism. For these dimensions, the experience of neglect co-occurring with abuse appears to be related to an exacerbation of liabilities, as indicated by the lower conscientiousness and higher

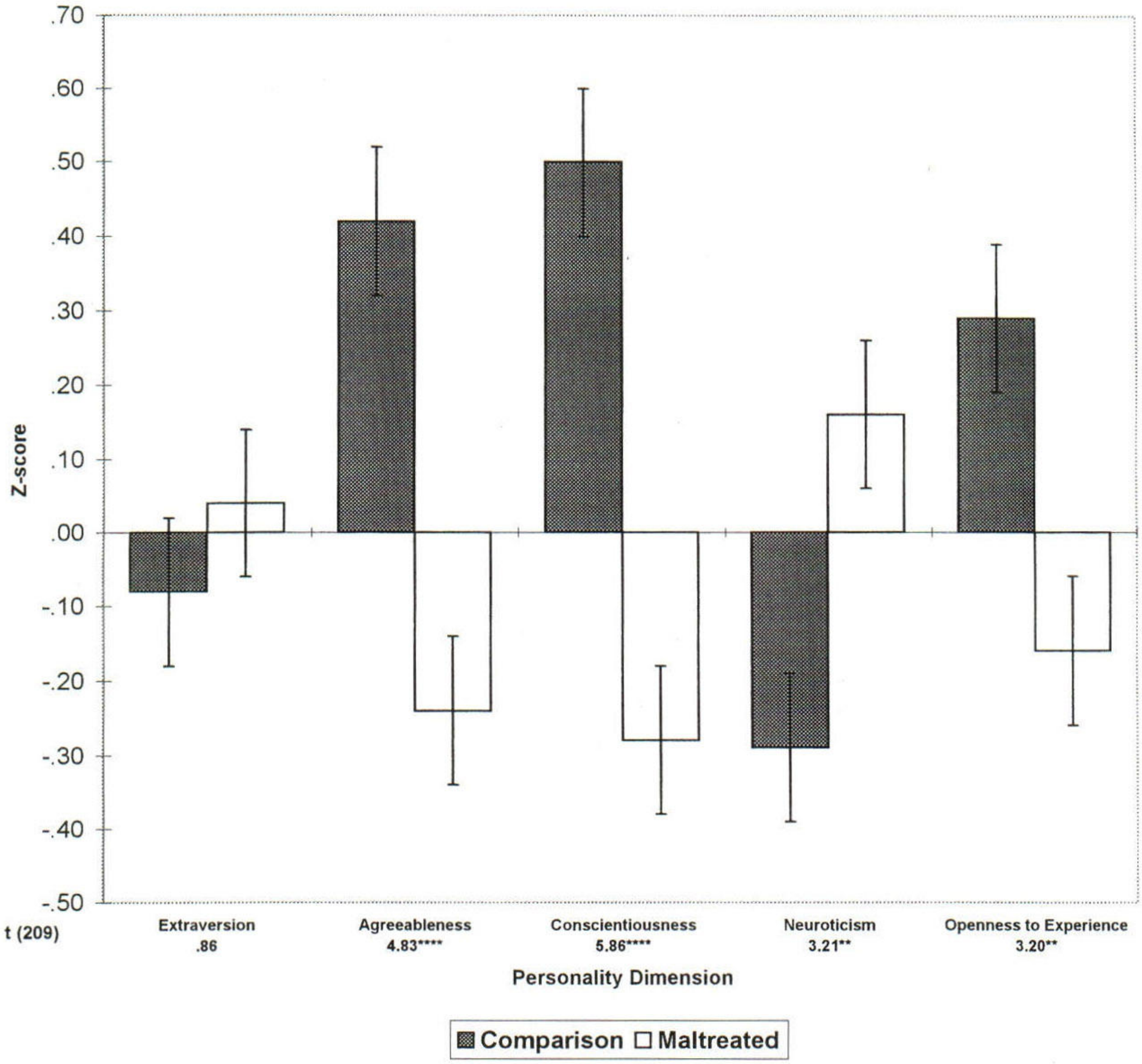


Fig. 1. Maltreated/comparison group differences on the Big Five personality dimensions—age six.

neuroticism scores in the abuse/neglect group relative to the abuse only group. Children who had been neglected only were not distinguished from nonmaltreated children on any personality dimension, whereas children who were both neglected and abused differed from nonmaltreated children on four of the five personality dimensions. Thus, it appears that when neglect co-occurs with abuse, more extensive differences in children's personality functioning are observed.

Person-Centered Analyses of Personality Configurations at Age Six

Personality Profile Groups at Age Six

The preceding analyses were informative in terms of revealing consistent group differences between maltreated and nonmaltreated children on the individual Big Five dimensions. However, these analyses do not indicate how

Table II. Comparison of Abuse and Neglect Groups on the Big Five Personality Dimensions at Age 6

	Personality dimension				
Abuse/neglect group	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
1. Nonmaltreated	−.08	.42	.50	−.29	.29
2. Neglect	−.08	.35	.01	−.02	.08
3. Abuse	.33	−.27	.14	−.26	.04
4. Abuse & neglect	−.01	−.45	−.56	.38	−.31
$F(3, 203)$	1.19	13.53****	17.94****	7.00***	4.98**
Contrasts		1 > 3, 4 2 > 4	1, 2, 3 > 4	1, 3 < 4	1 > 4

** $p < .01$. *** $p < .001$. **** $p < .0001$.

the personality dimensions are organized within individual children. Accordingly, cluster analysis was conducted to group together individual children with similar profiles of scores across the personality dimensions. A *k*-means cluster analysis procedure was utilized. The *k*-means cluster analysis is designed to maximize within-category homogeneity. We present the cluster solution in which five personality profile groups were derived. We opted not to restrict the cluster solution to three groups as was done in the Robins et al. (1996) and Hart et al. (1997) studies because of the potential for atypical personality clusters to emerge in a sample composed of many high risk children. Furthermore, the large resilient category, consistently identified in normative samples, has been criticized as being too all inclusive and containing considerable heterogeneity (Aksan et al., 1999). A more differentiated grouping of children was obtained by Caspi and Silva (1995) who identified five distinct personality clusters.

The replicability of the five-cluster solution was examined by randomly splitting the sample in half; 10 such randomized splits were conducted. The same cluster analysis procedure was then conducted within each of the random half samples. In each random half sample, comparable cluster solutions emerged, with considerable correspondence to the original cluster solution derived from the entire sample. The cluster placement of children in the original cluster solution was compared to the cluster placement assigned in each of the analyses conducted in the separate random half samples. All X^2's were highly significant. Overall, the average percent agreement between the original cluster placement and the comparable cluster placement in the random split half replications was 80.6% (range 65 to 93%).

Figure 2 presents the individual profiles for the five personality clusters derived. As can be seen from the figure, Cluster 1 ($n = 45$, 21.3%) and Cluster 2 ($n = 46$, 21.8%) demonstrate considerable similarity. Both profiles evince high scores on both agreeableness and conscientiousness, low scores on neuroticism, and high scores on openness to experience. The scores on these dimensions indicate that children in these clusters share adaptive qualities across these four dimensions, comparable to the Resilient group identified in previous studies. Clusters 1 and 2 differ on the extraversion dimension, with children in Cluster 1 scoring high on this dimension and children in Cluster 2 scoring low, thus indicating greater introversion. Consequently, Clusters 1 and 2 appear to encompass two variations of the Resilient group, comprised of children who are functioning adaptively but differ in terms of how extraverted versus introverted they are. We labeled these adaptive clusters "Gregarious" and "Reserved," respectively.

In contrast to the Gregarious and Reserved clusters, Cluster 3 ($n = 41$, 19.4%) represents a profile indicative of considerable liability in personality functioning. Children in this cluster, which we labeled "Dysphoric," appear in the average range in terms of extraversion/introversion. However, they exhibit very low scores on agreeableness and conscientiousness, high scores on neuroticism, and low scores on openness to experience. Thus, these children would be characterized by interpersonal antagonism, low motivation and poor self-direction, high emotional instability, and restricted interest in creative pursuits and novelty.

Very low scores on extraversion and high scores for neuroticism were prominent in Cluster 4 ($n = 29$, 13.7%). This group also had relatively average scores for the agreeableness and conscientiousness scales, but low scores for openness to experience. Children in this group would appear to be withdrawn and inhibited with high levels of negative affect. This cluster was labeled "Overcontrollers," given the similarity to the subgroup identified by Robins et al. (1996) and others.

Finally, the distinctive dimension for Cluster 5 ($n = 50$, 23.7%) appeared to be extraversion; a relatively low agreeableness score also was obtained. Low average to

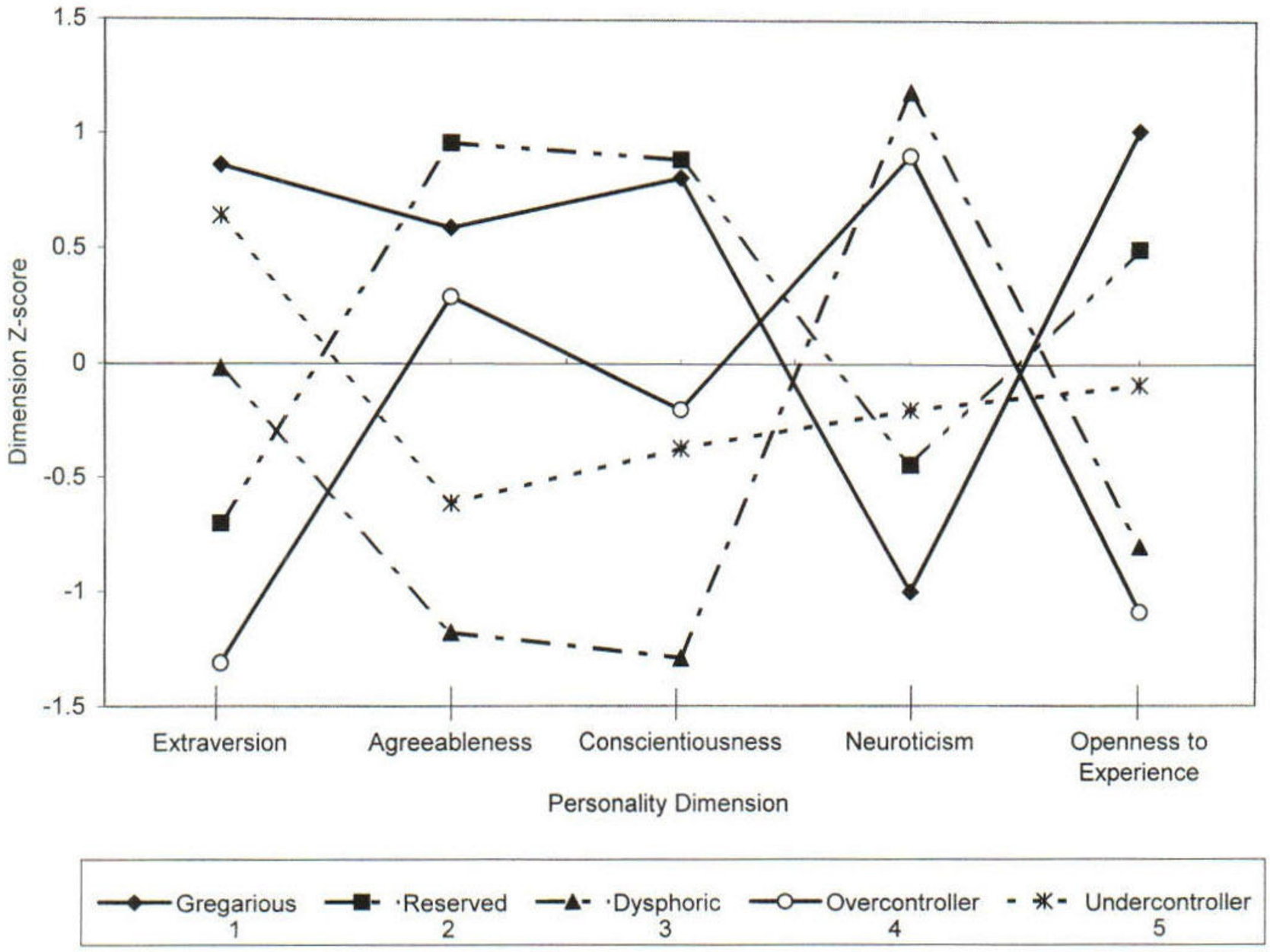


Fig. 2. Profiles of the Big Five personality groups at age six.

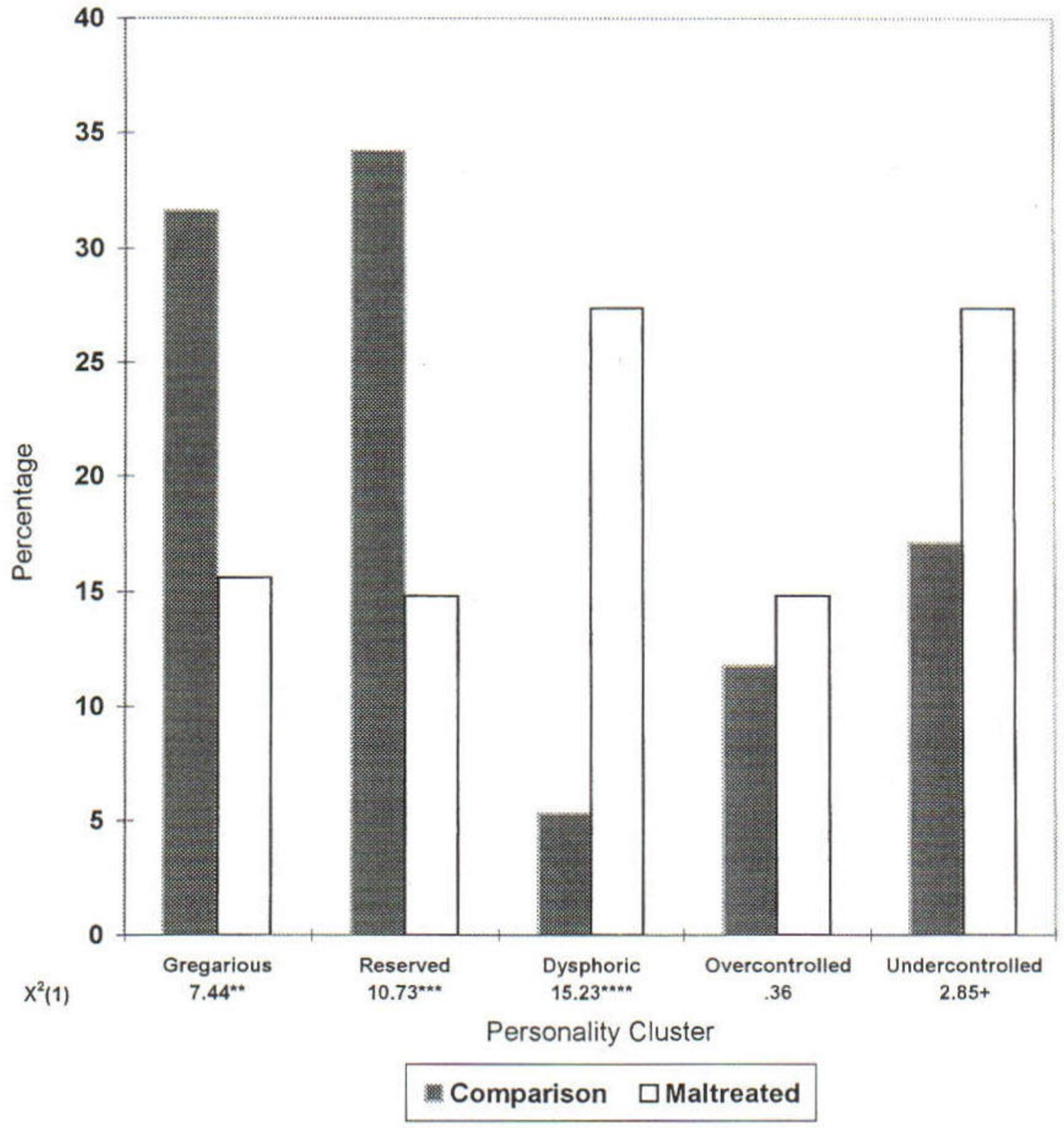
average scores were observed across the other three Big Five dimensions. The configuration of scores was comparable to that of the "Undercontrollers" in the Robins et al. study, and this label was used for this cluster.

Maltreatment and Personality Group Membership

We next examined whether membership in the five clusters differed depending on gender, race/ethnicity, or maltreatment status. Notably, no gender, $X^2(4) = 2.36$, *ns*, or race/ethnicity, $X^2(4) = 1.11$, *ns*, differences emerged for cluster membership. However, a substantial difference was found for maltreatment status in terms of the distribution of maltreated and nonmaltreated children in the five profile clusters, $X^2(4) = 29.01$, $p < .0001$. The proportions of maltreated and nonmaltreated children in each of the personality clusters are illustrated in Fig. 3. Individual X^2 tests were conducted comparing the proportions in the respective group versus all other groups. Significantly more nonmaltreated children (31.6%) than maltreated children (15.6%) were found in the Gregarious cluster and in the Reserved cluster (34.2% for nonmaltreated, 14.8% for maltreated). These two alternate personality organizations correspond to differential adaptive outcomes based on whether children were high or low in extraversion. Overall, over twice as many nonmaltreated children were found in these two competent clusters as compared to maltreated children (65.8% vs. 30.4%, respectively). Despite the prominence of nonmaltreated children in these two clusters, it is noteworthy that maltreated children also were found to exist within these more adaptive personality profile groups.

In contrast, the Dysphoric cluster was dominated by maltreated children, with a significantly higher prevalence of maltreated children in this cluster than nonmaltreated children. Overall, 27.4% of maltreated children were located in the Dysphoric cluster, over five times more than the 5.3% found for nonmaltreated children. The Overcontroller cluster did not differentiate maltreated and nonmaltreated children; 11.8% of the nonmaltreated and 14.8% of the maltreated children were found in this cluster. Finally, for the Undercontroller cluster, a trend was revealed, suggesting marginally more maltreated children (27.4%) represented in this cluster than nonmaltreated children (17.1%). Thus, the majority of maltreated children (69.6%) were represented in the three less adaptive personality clusters.

In addition to the overall effect of maltreatment status on cluster membership, we examined whether the experience of neglect, abuse, or co-occurring abuse and neglect



$^{+}p < .10$
$^{**}p < .01$
$^{***}p < .001$
$^{****}p < .0001$

Fig. 3. Percentages of maltreated/comparison children in the personality groups at age six.

related to different distributions for these groups across the five personality clusters. Within the maltreatment group, the abuse and/or neglect classification was found to be differentially related to cluster membership, $X^2(8) = 21.97$, $p < .005$. Although maltreated children overall were observed less frequently in the Gregarious and Reserved clusters compared to nonmaltreated children, within the maltreatment sample, children in the abused group were found more frequently (34.6%) in the Gregarious cluster than were children in the neglected (14.8%) or the abused and neglected groups (10.3%), $X^2(2) = 8.63$, $p < .01$. For the Reserved cluster, 29.6% of the neglect only group was found in this cluster, compared to 7.7% of the abused group and 11.5% of the abused and neglected group, $X^2(2) = 6.51$, $p < .05$. In contrast, children in the co-occurring abuse and neglect group were found more frequently in the Dysphoric cluster (38.5%) than was the case for neglected children (11.1%) and abused children (15.4%), $X^2(2) = 10.04$, $p < .01$. Within the maltreatment group, distributional differences were not found for the Overcontrolled and Undercontrolled clusters. Finally, if the less adaptive Dysphoric, Overcontrolled, and Undercontrolled clusters were considered together, 78.2% of abused and neglected children were found among these clusters, contrasting with 55.6% of neglected children, and 57.7% of abused children, $X^2(2) = 6.97$, $p < .03$. Thus, the combination of both abuse and neglect appears to relate to lower likelihood of adaptive personality organization

and higher likelihood of more compromised patterns of personality functioning.

Peer Evaluations at Age Six

We next examined the peer nomination data as a means of validating the personality dimensions and profile groups with an independent method of assessment. These data also indicate the extent to which 6-year-old agemates, on the basis of their interpersonal interactions, are able to differentiate between maltreated and nonmaltreated children and between children displaying varying personality features and organizations.

In terms of maltreatment status, a MANOVA indicated that significant maltreatment group differences existed among the peer variables, Wilks's $F(5, 205) = 4.03$, $p < .01$. Follow-up group comparisons indicated that differences were present on three of the five peer scales, with marginal differences found for the other two peer nomination measures. (See Table III). In all cases, maltreated children scored less adaptively than did nonmaltreated children. Compared to nonmaltreated children, the maltreated children obtained lower peer scores for cooperative, and they obtained higher scores for disruptive and fights. Maltreated children were marginally lower than were nonmaltreated children on shy and leader.

At the variable level, the personality dimensions correlated significantly with the peer nomination scores (see Table IV), indicating conceptual similarity between the adult-rated personality dimensions and peer perceptions. For example, extraversion correlated negatively with peer scores for shy. Peer perceptions of cooperativeness related to higher agreeableness, conscientiousness, and openness and to lower neuroticism. Lower neuroticism (emotional stability) and higher openness corresponded to higher peer leader scores. Finally, peer scores for both disruptive and fights were related to lower agreeableness (antagonism), conscientiousness, and openness, and higher neuroticism. Thus, features of each of the personality dimensions were reflected in the perceptions of peers regarding their agemates.

From a person-centered perspective, peer-perceptions also differentiated children in the personality groups, as indicated by a significant multivariate effect for profile group, Wilks's $F(20, 670.91) = 5.36$, $p < .001$. Strong personality group differences emerged for four of the five peer nomination categories: shy, cooperative, disruptive, and fights. (See Table III). Post hoc Tukey HSD tests were used to examine significant differences among the personality groups on each peer dimension. Additionally, the rows in Table III represent each personality group's profile of peer nomination scores.

The Reserved and Gregarious clusters, the two adaptive groups dominated by nonmaltreated children, were not significantly different from each other on any peer scale. However, both were significantly higher on cooperative and were lower on disruptive and fights than the Dysphoric cluster. The contrasts reflect these groups' differences on agreeableness. The Reserved cluster was further differentiated from the Undercontroller cluster by significantly higher scores for cooperative and lower scores for disruptive and fights. The shy category also differentiated these two groups, reflecting the low extraversion of the Reserved cluster, relative to the Undercontroller group.

Table III. Comparison of Maltreatment Groups and Personality Profile Groups on Peer-Perceived Characteristics at Age 6

	Peer nominations				
	Shy	Cooperative	Leader	Disruptive	Fights
Maltreatment group					
Maltreated	−.05	−.23	−.13	.16	.17
Nonmaltreated	.18	.25	.12	−.28	−.25
$t(209)$	1.67†	3.52***	1.76†	3.49***	3.18**
Profile					
Gregarious	−.15	.15	.19	−.29	−.36
Reserved	.26	.45	−.07	−.48	−.49
Dysphoric	.16	−.58	−.13	.72	.87
Overcontroller	.47	−.06	−.14	−.13	−.27
Undercontroller	−.37	−.27	−.09	.19	.30
$F(4, 206)$	5.18***	8.35****	.88	11.30****	16.69****
Contrasts	4 > 1, 5 2 > 5	2 > 3, 5 1 > 3		3 > 1, 2, 4 5 > 2	3 > 1, 2, 4, 5 5 > 1, 2

$^{\dagger}p < .10$. $^{**}p < .01$. $^{***}p < .001$. $^{****}p < .0001$.

Table IV. Correlations Between Personality Dimensions and Peer Nomination Scores at Age 6

	Shy	Cooperative	Leader	Disruptive	Fights
Extraversion	−.28***	−.03	.10	.12	.12
Agreeableness	.11	.42***	.11	−.51***	−.57***
Conscientiousness	.00	.41***	.10	−.42***	−.44***
Neuroticism	.15*	−.29***	−.14*	.26***	.30***
Openness	−.05	.20**	.15*	−.19**	−.21**

*$p < .05$. **$p < .01$. ***$p < .001$.

Across the peer scales, children in the Dysphoric cluster, 90% of whom were maltreated, stand out for extreme peer scores for cooperative, disruptive, and fights. The Dysphoric group was significantly lower than both the Gregarious and Reserved groups on cooperative. The Dysphoric group also had significantly higher peer scores for disruptive than the Reserved, Gregarious, and Overcontroller clusters, and had significantly higher peer scores for fights than each of the other clusters. Thus, the Dysphoric group was clearly differentiated negatively by peers, reflecting the personality liabilities evident in the personality characteristics of this cluster. It also is noteworthy that the Dysphoric group did not differ from any group on the peer shy scale, consistent with this group's mid-range extraversion score.

The Overcontroller cluster, characterized by low extraversion and high neuroticism, was distinguished by the shy peer category, obtaining significantly higher shy scores than the more extraverted Gregarious and Undercontrolled clusters. The Overcontroller cluster also obtained lower peer scores on disruptive and fights than the Dysphoric group.

Finally, the Undercontroller cluster evidenced some differentiation from other groups similar to the Dysphoric cluster, but to a less extreme degree. The Undercontroller cluster was significantly lower on peer scores for shy and cooperative and significantly higher on disruptive and fights than the Reserved group. Although the Undercontroller group was significantly higher on fights than both the Reserved and Gregarious clusters, even the Undercontroller cluster was significantly lower on fights than the Dysphoric group. The Undercontroller cluster had the lowest peer score for shy, reflecting this cluster's high extraversion.

Longitudinal Examination of the Personality Dimensions and Profile Groups

Stability of the Personality Dimensions

Longitudinal personality evaluations completed by independent groups of counselors as children progressed from age six to age nine were used to assess stability of the personality dimensions across subsequent points in development. Table V presents one-, two-, and three-year stability correlations for each of the Big Five personality scales across the ages of six to nine. Overall, the correlations indicate considerable stability in the personality dimensions over time. Only the correlation for openness to experience from age six to age nine and the correlation for openness to experience from age eight to nine were not significant. All other stability correlations were significant and did not evidence wide fluctuation in their overall level of association across time.

Table V. Longitudinal Stability Correlations

	Age 7	Age 8	Age 9
Extraversion			
Age 6	.45***	.49***	.39***
Age 7		.58***	.36***
Age 8			.49***
Agreeableness			
Age 6	.52***	.56***	.61***
Age 7		.52***	.62***
Age 8			.65***
Conscientiousness			
Age 6	.58***	.43***	.50***
Age 7		.45***	.52***
Age 8			.56***
Neuroticism			
Age 6	.37***	.23**	.22**
Age 7		.35**	.32***
Age 8			.45***
Openness to experience			
Age 6	.30***	.20*	.12
Age 7		.31***	.33***
Age 8			.15
Sample size			
Age 6	155	131	128
Age 7		114	111
Age 8			99

*$p < .05$. **$p < .01$. ***$p < .001$.

The correlations indicate the extent of stability in the participants' rank order levels over time for the Big Five dimensions, but they do not address if change in magnitude on the individual dimensions is occurring or if there is differential change for maltreated and nonmaltreated children. Accordingly, repeated measures ANOVAs were conducted with the age six and age nine scores for each dimension and with maltreatment status as the between subjects variable. As a result of attrition, this analysis involved 128 children or 60.7% of the original sample. All four age periods were not included because of the limited number of children ($n = 89$, 42.2%) who had all four

annual assessments. The ANOVAs indicated that across all five dimensions, no significant time effects were present; Fs(1,126) ranged from 0.10 to 1.64, ns. Similarly, the interactions for time and maltreatment status also were not significant for agreeableness, conscientiousness, neuroticism, and openness, with Fs(1,126) ranging from 0.24 to 0.90, all ns. A significant interaction was observed only for extraversion, $F(1,126) = 7.15$, $p < .01$. However, closer examination indicated that this result was likely an artifact of differential attrition between the maltreated and nonmaltreated groups. An ANOVA examining age six extraversion for maltreated and nonmaltreated children who did and did not have age nine data revealed a significant interaction, $F(1,207) = 9.39$, $p < .01$. Maltreated children who were retained had higher scores than those who were not assessed at age nine; the reverse was true for nonmaltreated children. Comparable interaction effects for the other dimensions were all nonsignificant, indicating that the other dimensions were not differentially biased for maltreated and nonmaltreated children on the basis of the subset of participants who were reassessed at age nine. Thus, aside from the bias for extraversion, the repeated measures analyses suggest relative stability between age six and nine in the observed levels of the Big Five dimensions as manifested by maltreated and nonmaltreated children.

Consistent with the lack of significant time effects for the five personality dimensions and the nonsignificant interactions of maltreatment status and time for four of the five dimensions, stability was found in the pattern of differences between maltreated and nonmaltreated children across the Big Five dimensions. Comparison of Fig. 1 and Fig. 4 reveals a consistent configuration of maltreatment group differences at both ages. Significant differences between maltreated and nonmaltreated children at age nine were found for four Big Five dimensions, and these were the same differences observed at age six. Maltreated children were significantly lower than nonmaltreated children on the dimension of agreeableness, conscientiousness, and openness to experience, and maltreated children obtained higher neuroticism scores than nonmaltreated children. Maltreated children also obtained higher neuroticism scores than nonmaltreated children. Additionally, no maltreatment group differences were found for extraversion at age nine, as was observed at age six.

Stability of Features of the Age Six Personality Groups at Age Nine

The results at age six clearly established differences in the distribution of maltreated and nonmaltreated children in the five different personality profiles that were obtained. Because of the reduced sample size available at age nine ($N = 128/211$), new cluster analyses were not conducted to regroup the children based on their age nine Big Five scores. Rather, we were interested in determining the extent to which children in the profile groups derived at age six demonstrated similar or different configurations across the personality dimensions at age nine. Accordingly, we plotted the age nine mean scores for the Big Five dimensions for the original age six personality groups. The pattern of scores for the personality groups is illustrated in Fig. 5. In general, the profile groups at age nine continue to evince configurations similar to those observed at age six. However, the extent of group differences on the individual dimensions demonstrates less distinctiveness.

To evaluate the extent to which the profile cluster groups continued to differ on the Big Five personality dimensions, repeated measures ANOVAs were conducted for each of the personality dimensions at age six and nine, with profile cluster group as the between subjects variable. No significant time effects were observed for any of the five dimensions, indicating that the mean levels of the personality dimensions were not significantly different over time. However, significant interactions of time and personality profile group were found for each of the five personality dimensions, with Fs(4,123) ranging from 3.60 to 15.62. These time interaction effects all indicated that the differentiation of the profile groups was decreasing over time.

To examine the extent of between-group differences among the profile groups on the age nine personality dimensions, a MANOVA was conducted with the profile groups as the independent variable and the five personality dimensions as assessed at age nine as the dependent variables. The multivariate personality group effect was significant, $F(20,395.63) = 4.69$, $p < .001$. Follow-up ANOVAs with Tukey HSD post hoc comparisons were conducted to determine the extent of significant differences among the profile groups on the individual personality dimensions. Examination of the individual age nine ANOVAs indicated that significant profile group differences were present for four of the dimensions; Fs(4, 123) ranged from 3.09 to 16.85, ps $< .05$s to .001; only openness to experience did not differentiate the profile groups.

In deriving the original personality clusters of children based on their age six personality dimensions, the clusters were formed to maximally differentiate profile groups based on mean level differences for the personality dimensions. Despite relatively fewer significant between-group differences among the profiles at age nine, many of the most extreme differences among the profile groups

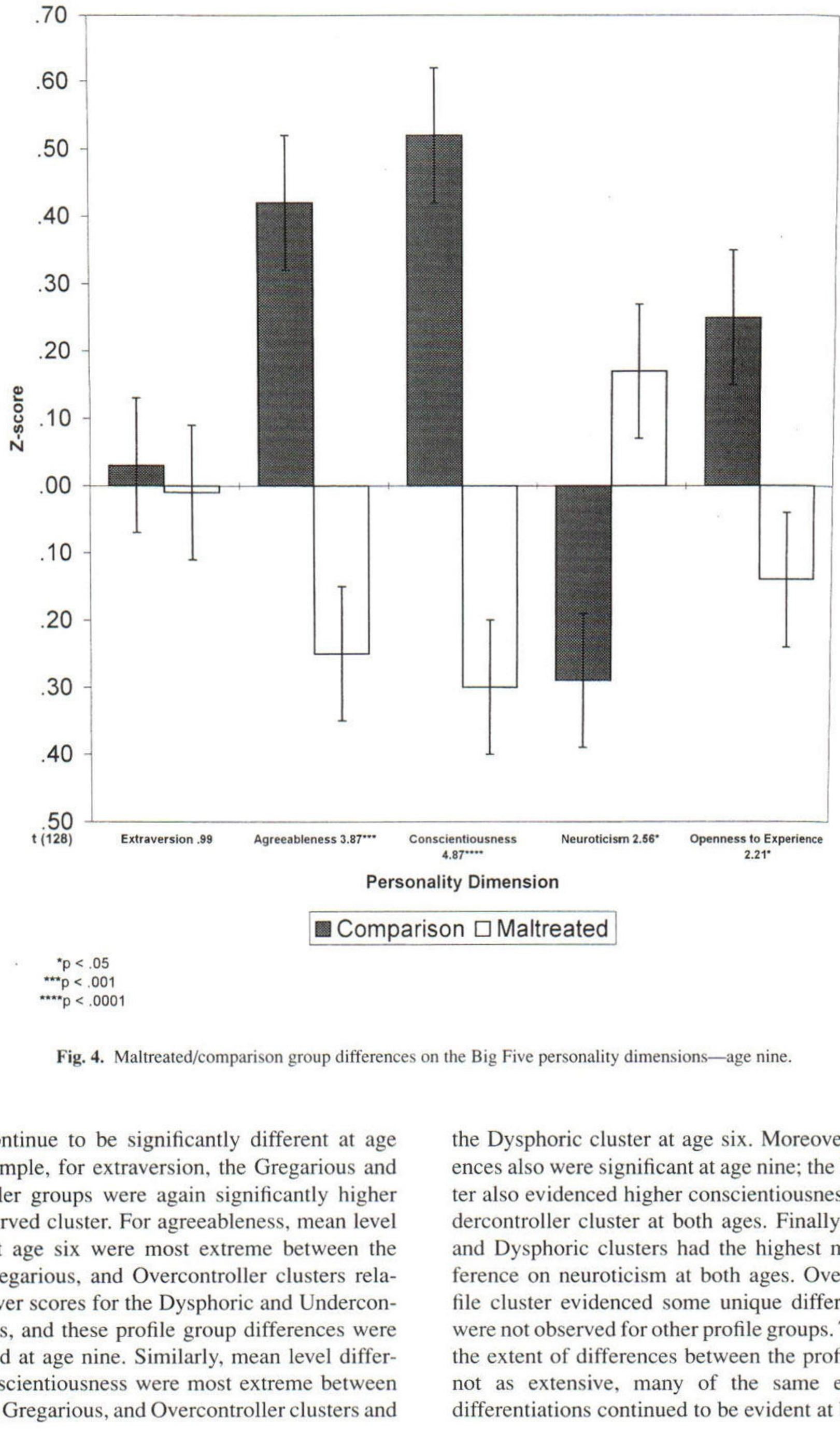


Fig. 4. Maltreated/comparison group differences on the Big Five personality dimensions—age nine.

at age six continue to be significantly different at age nine. For example, for extraversion, the Gregarious and Undercontroller groups were again significantly higher than the Reserved cluster. For agreeableness, mean level differences at age six were most extreme between the Reserved, Gregarious, and Overcontroller clusters relative to the lower scores for the Dysphoric and Undercontroller clusters, and these profile group differences were again obtained at age nine. Similarly, mean level differences on conscientiousness were most extreme between the Reserved, Gregarious, and Overcontroller clusters and the Dysphoric cluster at age six. Moreover, these differences also were significant at age nine; the Reserved cluster also evidenced higher conscientiousness than the Undercontroller cluster at both ages. Finally, the Reserved and Dysphoric clusters had the highest mean level difference on neuroticism at both ages. Overall, each profile cluster evidenced some unique differentiations that were not observed for other profile groups. Thus, although the extent of differences between the profile groups was not as extensive, many of the same extreme group differentiations continued to be evident at both ages.

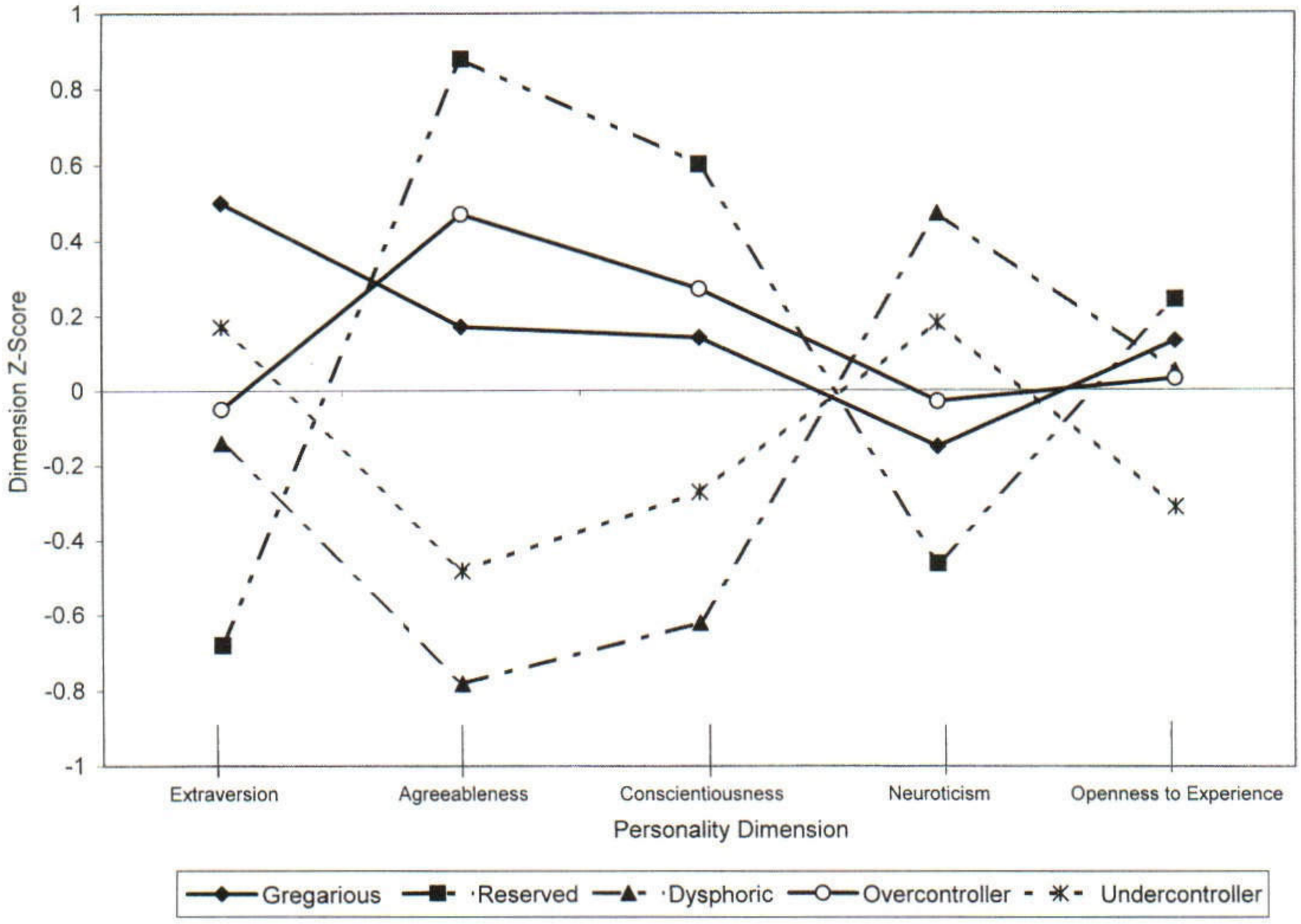


Fig. 5. Profiles of the age six Big Five personality groups at age nine.

DISCUSSION

The findings of this investigation advance the understanding of personality development in high risk children, some of whom had experienced child maltreatment. Substantial diversity among six-year-old children was observed in terms of the personality dimensions of the Five-Factor model. The meaningfulness and utility of the personality dimensions in characterizing individual differences among children are supported by the findings of longitudinal stability of the personality dimensions at ages seven, eight, and nine, as assessed by independent adult raters. Thus, the Big Five personality characterizations appear to capture features of children that are relatively enduring during the school-age years. Moreover, peers' perceptions of individual children evinced marked correspondence to the personality differentiations attributed by adults. These findings have important ramifications for the types of interpersonal behavior maltreated and nonmaltreated children exhibit as they interact and form relationships with peers, a central arena for social development during this developmental period.

In examining patterns of personality organization within children based on the Big Five dimensions, the nonmaltreated children demonstrated personality configurations comparable to that found in other investigations (Asendorpf & van Aken, 1999; Hart et al., 1997; Robins et al., 1996). Although five personality clusters were identified in this study, contrasting with the three groups isolated by Robins et al. (1996) and replicated by others, considerable similarity is nevertheless evident. Specifically, the "Overcontrollers" and "Undercontrollers" in this and previous studies bear substantial resemblance in terms of their profiles across the Big Five dimensions. The Gregarious and Reserved clusters of this study, if combined, would be very similar to the "Resilients" of the Robins study, with high scores on agreeableness, conscientiousness, and openness to experience, and low scores on neuroticism, while showing more variability in terms of extraversion. More recently, Robins et al. (1998) have proposed that it may be important to identify subgroups within their Resilients category, consistent with the two adaptive groups identified herein. Importantly, the distribution of children across profile groups in the Robins et al. (1996) study was very similar to the distribution of nonmaltreated children in the current investigation ("Overcontrollers": 14% vs 12%; "Undercontrollers": 20% vs 17%, and "Resilients": 66% vs 66%, respectively for Robins et al. vs the current study). As such, the present findings provide confirmation of the frequency with which different

personality organizations typically occur in samples of children.

Within the context of the typical patterns of personality functioning observed among the nonmaltreated children, the current investigation provided compelling evidence of striking differences between maltreated children and nonmaltreated children in terms of how they compared on major dimensions of personality functioning at age six. These differences were obtained despite the possibility of some undetected maltreatment occurring in the nonmaltreated group as a result of reliance on record data for group ascertainment. This potential would have worked to reduce the group differences obtained. At the variable level, maltreated children as a group were found to exhibit less adaptive functioning on four of the five Big Five personality dimensions. On the basis of the content of the Big Five dimensions, maltreated children on average are more antagonistic and disagreeable, and less kind, helpful, and cooperative (low agreeableness). They are perceived to be less trustworthy and dependable, and appear more lacking in direction, motivation, and task- and goal-orientation (low conscientiousness). Higher levels of neuroticism indicate that maltreated children are prone to negative affect and unstable in emotional controls, and they have greater hypersensitivity and difficulty in dealing with stress. Additionally, they are less likely to be interested in educational pursuits and less stimulated by problem-solving and imaginative thinking (low openness). Extraversion was the one Big Five dimension that did not differ between the groups. Not only were these group differences observed at age six, but also maltreated and nonmaltreated children continued to be differentiated on the same personality dimensions at age nine, indicating that the personality liabilities of maltreated children are not transient, but rather remain enduring over the school-age years. Comparable to these adult-perceived personality differences, maltreated children were similarly differentiated by more negative and less positive perceptions from their peers. These findings are consistent with other research detailing the difficulties maltreated children encounter in relationships with their peers (Bolger et al., 1998; Cicchetti et al., 1992; Mueller & Silverman, 1989).

The person-centered approach elucidated patterns among the personality dimensions within children, resulting in a complementary, yet more complex, picture of personality organization in maltreated children. Whereas the majority of nonmaltreated children (65.8%) were to be found in the adaptive Gregarious and Reserved clusters, the majority of maltreated children (69.6%) were distributed in the three less adaptive personality profiles (Undercontroller, Overcontroller, and Dysphoric). These distributional differences are consistent with the variable-centered analyses in confirming greater difficulties in personality functioning among maltreated children. However, the person-centered analyses illustrate diversity in the personality organizations observed among maltreated children. Not only were different forms of vulnerable personality organization present, but also maltreated children were represented in the Gregarious and Reserved personality clusters. These children may bear similarity to maltreated children who have been identified as resilient in prior investigations (Cicchetti & Rogosch, 1997; Cicchetti et al., 1993; Moran & Eckenrode, 1992), given their more optimal functioning despite having been maltreated. Previous work also has demonstrated distinctions between subgroups of maltreated children displaying different patterns of emotion dysregulation, including undercontrolled/ambivalent and overcontrolled/unresponsive types (Maughan & Cicchetti, 2002). These alternative forms of emotion dysregulation may correspond to the less adaptive personality organizations observed among maltreated children in the current investigation.

The findings are consistent with a developmental psychopathology perspective regarding developmental pathways (Cicchetti & Rogosch, 1996). Specifically, the fact that various profiles of personality functioning were observed in both the maltreated and the nonmaltreated groups demonstrates equifinality in personality development. The same outcomes (i.e., each of the specific personality profiles) were evinced by children from different types of rearing environments. Furthermore, the findings also attest to multifinality in development, in that diverse types of personality organization were observed among the maltreated children. Not all maltreated children displayed the same pattern of personality organization, a conclusion that is not as apparent from a variable-centered perspective. Thus, the person-centered approach is valuable for demonstrating the principles of equifinality and multifinality in personality development.

The children in the Dysphoric personality cluster evinced substantial compromises in optimal personality functioning. Specifically, children in this group were characterized by low levels of conscientiousness, agreeableness, and openness to experience, and high levels of neuroticism or emotional instability. Importantly, this extreme profile was found predominantly among maltreated children, occurring five times more often among maltreated than nonmaltreated children. In fact, the profile was rarely observed among nonmaltreated children, likely accounting for why this group has not been identified in more normative samples (Hart et al., 1997; Robins et al., 1996). In attachment research, the study of maltreated infants contributed significantly to attachment theory through the delineation of the type D, disorganized-disoriented

attachment classification, an attachment organization not as readily observed in normative samples (Barnett, Ganiban, & Cicchetti, 1999; Carlson, Cicchetti, Barnett, & Braunwald, 1989; Lyons-Ruth, Repacholi, McLeod, & Silva, 1991; Main & Solomon, 1990). Analogously, in the current study, the understanding of the range of potential personality organizations that develop is enhanced through the inclusion of children who have had highly atypical experiences. The person-centered approach also is valuable for revealing that multiple problems may be concentrated among the same individuals within a high risk group. The pattern of multiple deficits among children in the Dysphoric cluster may reflect a process of problem aggregation (Bergman & Magnusson, 1997), in that a subgroup of children within the maltreatment group is evincing extensive problems across multiple dimensions, thereby contributing to the differences in individual dimensions observed at the group level. It is noteworthy that the extreme scores of the Dysphoric cluster on four of the Big Five dimensions reflect the overall maltreatment group differences at the variable level. Similarly, the peer nominations for cooperative, disruptive, and fights for the Dysphoric cluster represented the same peer variables that were significantly different for the maltreated group as a whole. Thus, multiple variable-level group differences appear to reflect difficulties particularly pertinent to a subgroup of maltreated children, and it may be misleading to generalize these diverse deficits as applicable to the entire maltreated group. Consequently, the person-centered approach is likely to be useful in targeting specific children in high risk conditions who are more profoundly affected by their adverse experiences.

The longitudinal data provided evidence for the relatively enduring nature of the personality dimensions and profile groups over time. A limitation of this study was the extent of missing data resulting in variation in the composition of the groups of children who were reassessed at age seven, eight, and nine, and the smaller number of children assessed each follow-up year. The attrition patterns precluded a more thorough examination of change patterns of individual dimensions (e.g., growth curve modeling) across the four assessment waves. Furthermore, because of participant loss, we did not recluster children at each of the follow-up assessments to examine stability of the classifications. Despite these limitations, the available data in general provide support for the continuity of the Big Five dimensions and patterns of within-individual personality organization. However, the personality dimension that demonstrated the least stability over time was openness to experience. The openness to experience dimension has shown relatively weaker internal consistency in research with both adults (Goldberg, 1990) and children (John et al., 1994). Similarly, this dimension demonstrated weak internal consistency at each assessment period in the current investigation, which likely contributed to the reduced longitudinal stability observed in the current sample. Alternatively, the lower stability may suggest that the impact of schooling in the ensuing years has differentially influenced how children approach intellective, creative, and problem-solving situations. The extrafamilial school context may have provided alternatives for children that influenced their tendencies in this domain allowing for reorganization, whereas other dimensions of personality functioning appeared less affected. Another limitation of this investigation involved only measuring personality features in the summer camp context. Inclusion of additional assessment contexts and sources, for example, in school, would likely contribute to further refinement in the measurement of individual differences in children's personality.

Whereas previous research has demonstrated that childhood personality types are differentially related to subsequent indicators of adaptation and adjustment (Caspi & Silva, 1995; Hart et al., 1997; Robins et al., 1996), further efforts are needed to identify processes that influence the development of individual differences in the Big Five personality dimensions and their organization in personality types. Twin study research (Jang, Livesley, & Vernon, 1996; McCrae, Jang, Livesley, Riemann, & Angleitner, 2001) has demonstrated broad and consistent genetic effects for each of the FFM dimensions in adult samples. Shared environmental influences have been found to be negligible, and apparent nonshared environmental effects, controlling for measurement biases, have not been shown to be systematic (McCrae et al., 2001). Thus, evidence supports genetic contribution to the FFM personality dimensions. In parsing the effects of genetic and environmental influences, the extent of variation in environmental experiences is unclear. In particular, it is not known to what extent rearing experiences violated what is regarded as "good enough" parenting (Winnicott, 1958). Rutter, Pickles, Murray, and Eaves (2001) have noted that the samples used in twin and adoption studies are likely to have serious underrepresentations of high-risk environments, thereby limiting the extent to which nongenetic influences will be differentiated. Environmental effects potentially could be more influential if the range of experience were to be expanded, as in child maltreatment, where extreme deficiencies in parenting are inherent.

The design of the current investigation does not enable us to differentiate the extent of genetic and environmental effects that contribute to the personality differences observed. Undoubtedly, genetics contribute to the diversity of individual differences that are found among both

maltreated and nonmaltreated children, and some degree of the variation in personality may be a result of the influence of heritability of personality features from the children's parents. Although we do not have data available on the personality organization of the parents of children in the sample, it may be that personality vulnerabilities of the maltreating parents may be inherited by the maltreated child. Furthermore, parental personality liabilities also may contribute to parenting deficits and the perpetration of maltreatment in maltreating families. From this perspective, both child personality characteristics and the maltreatment itself may be influenced by heritability from parents. Even assuming genetic effects on maltreatment, the mode of transmission need not be entirely genetic. Rutter et al. (2001) note that behavior genetic designs typically attribute environmental effects to genetics when environmental risks are genetically influenced. However, even if the origin of risk, that is, for maltreatment, is genetically influenced, that does not mean that the environmental effect has no impact (Cicchetti, 2002). Moreover, alterations in gene expression may be induced by experience, thereby modifying biological contributions to individuality (Kandel, 1998). Accordingly, the experience of maltreatment itself, above and beyond genetic influence, is likely to influence personality development.

It is noteworthy that extraversion was the one personality dimension revealing no group-level differences between maltreated and nonmaltreated children. Extraversion would thus not appear to be influenced by the experience of maltreatment and may be tapping a largely genetically influenced, innate personality trait, as long posited by Eysenck (1960). Hagekull and Brohlin (1998) have shown that extraversion in middle childhood is the Big Five dimension most strongly related to temperament measured during the early years. The different personality profile groups examined may suggest alternative pathways that individual children who vary in extraversion may take. For nonmaltreated children, those high in extraversion predominate in the Gregarious cluster, whereas those low in extraversion are frequent in the Reserved cluster. In contrast, child maltreatment may be conceptualized as interacting with more innate tendencies toward extraversion or introversion, reducing the likelihood that more adaptive variations of personality organization would be achieved. As an example of person- environment-interaction, the detrimental influence of the maltreating environment may promote the alternate less adaptive personality organizations (Undercontroller, Overcontroller, Dysphoric), depending on an individual's more innate propensities toward extraversion or introversion.

Beyond the overall classification of maltreatment, we determined whether children had experienced abuse and/or neglect. The commission versus omission types of maltreatment constitute different forms of parental violations of appropriate parenting, and the unique or joint experience of abuse and neglect was found to be related to variation in personality features. Children who experienced both abuse and neglect evinced more personality vulnerabilities at both the variable- and person-centered levels, suggesting a cumulative effect of different forms of parenting failure. In contrast, it is noteworthy that children who had been neglected but not abused, did not have the extensive personality liabilities of abused children. This does not suggest that the effect of neglect is negligible. Rather, when neglect co-occurred with abuse, the joint effects of abuse and neglect were related to greater extremes in personality liability, than either abuse or neglect alone. Evidence was found for specific effects of abuse, involving lower levels of agreeableness. This personality dimension has been linked more strongly to the attachment system (Hagekull & Bohlin, 1998) than to early temperament systems. It may be that children who are less agreeable/more antagonistic may be more vulnerable to experiencing parental abuse. Moreover, to the extent that agreeableness is heritable, the parents of abused children may be more likely to be antagonistic and less inhibited from perpetrating acts of abuse upon their children. In turn, children who experience abuse may respond to such experiences with a diminished propensity to exhibit kind, sensitive, and accepting interpersonal behavior.

Recently, Shields, Ryan, and Cicchetti (2001) have demonstrated that maltreated children have diminished positive representations of their caregivers, which in turn contribute to emotion dysregulation and peer rejection. Similarly, Rogosch, Cicchetti, and Aber (1995) have shown that maltreated children display affect processing deficits and subsequent heightened cognitive perceptual distortions, and that these difficulties contribute to peer relations problems. Moreover, maltreated children have been found to exhibit a psychophysiological hypersensitivity to anger stimuli (Pollak, Cicchetti, Klorman, & Brumaghim, 1997). These studies provide exemplars of processes influencing social adaptation that are brought into relief when development is charted in maltreated children. The way in which such component processes consolidate into more global features of personality functioning and the organization of personality types in both maltreated and nonmaltreated children emerge as important areas of focus for future research.

The findings of this investigation have important clinical implications. Among low-income children, the vulnerability in personality features and organization of maltreated children is substantial, and preventive interventions are necessary to promote competence and reduce the

development of psychopathology (Toth, Maughan, Manly, Spagnola, & Cicchetti, 2002). However, maltreated children do not present with a constant set of personality liabilities, and a uniform intervention approach may not be effective. As such, prevention and intervention approaches targeted at child maltreatment will need to incorporate different strategies, tailored to the individual differences among maltreated children (Toth & Cicchetti, 1993, 1999). Furthermore, understanding how different forms of competent adaptation are achieved among maltreated children should provide valuable directions for conceptualizing varied preventive approaches (Cicchetti & Hinshaw, 2002).

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